FIG. 1

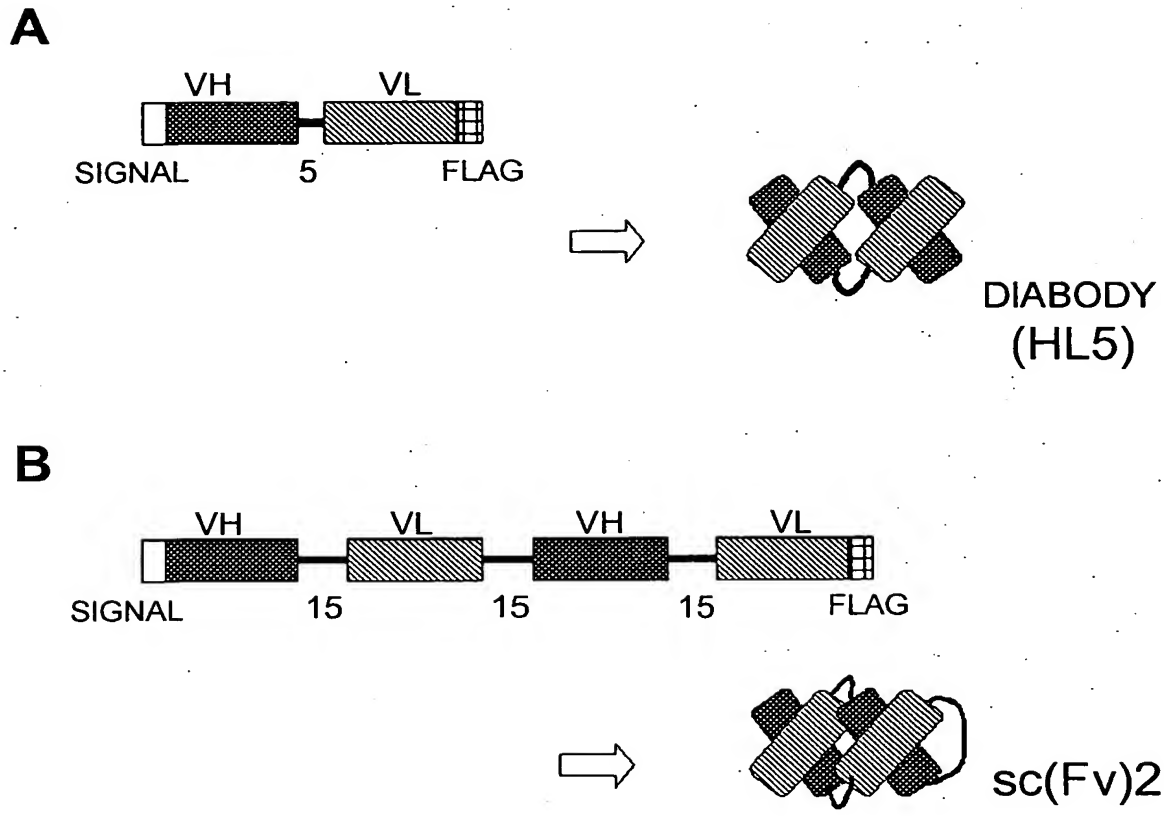

A
VH
VL
SIGNAL
5
FLAG
DIABODY
(HL5)
B
VH
VL
VH
VL
SIGNAL
15
15
15
FLAG
sc(Fv)2

FIG. 2

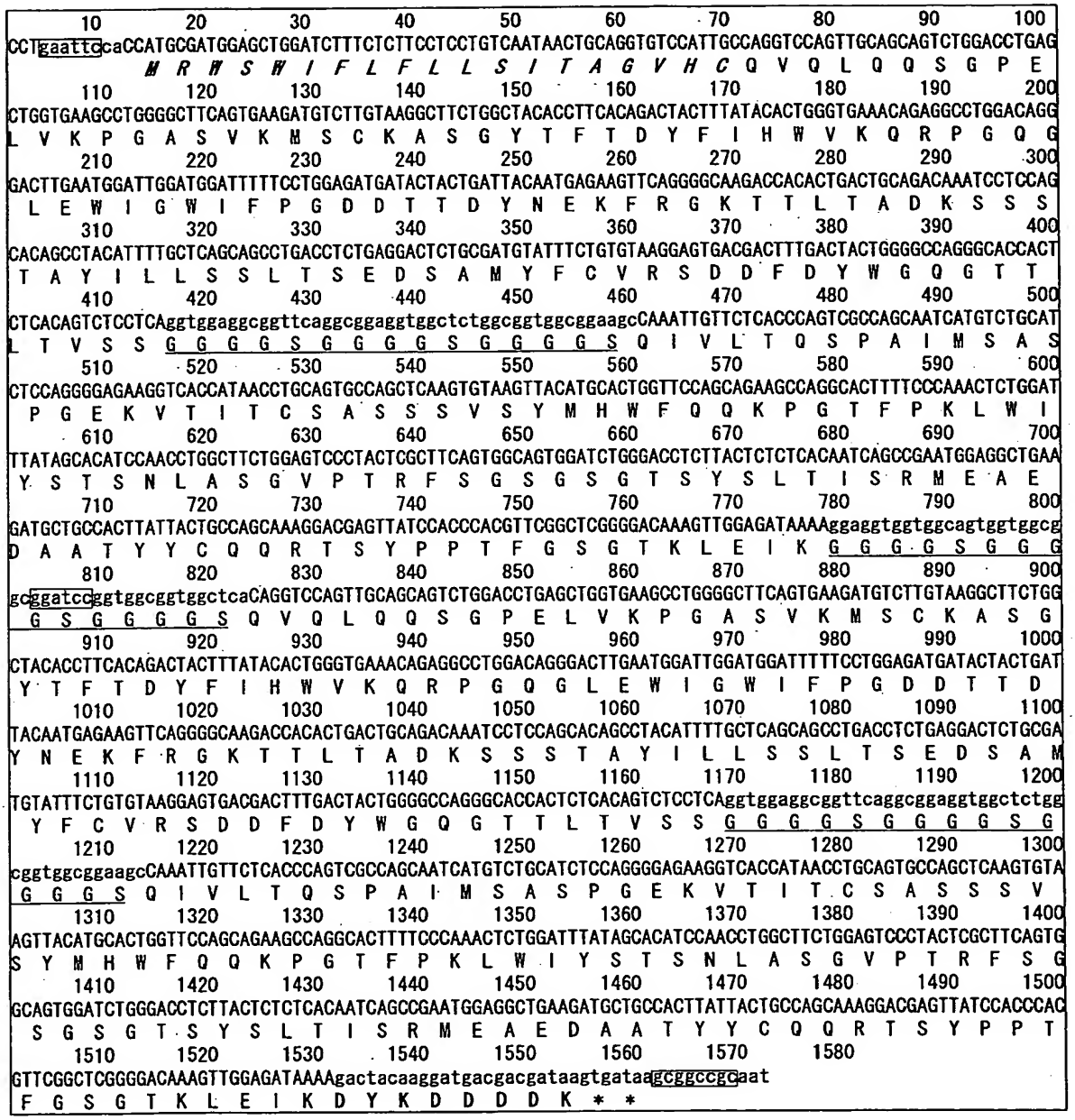

10 20 30 40 50 60 70 80 90 100
CCTgaattccaCCATGCGATGGAGCTGGATCTTTCTCTTCCTCCTGTCAATAACTGCAGGTGTCCATTGCCAGGTCCAGTTGCAGCAGTCTGGACCTGAG
M R W S W I F L F L L S I T A G V H C Q V Q L Q Q S G P E
110 120 130 140 150 160 170 180 190 200
CTGGTGAAGCCTGGGGCTTCAGTGAAGATGTCTTGTAAGGCTTCTGGCTACACCTTCACAGACTACTTTATACACTGGGTGAAACAGAGGCCTGGACAGG
L V K P G A S V K M S C K A S G Y T F T D Y F I H W V K Q R P G Q G
210 220 230 240 250 260 270 280 290 300
GACTTGAATGGATTGGATGGATTTTTCCTGGAGATGATACTACTGATTACAATGAGAAGTTCAGGGGCAAGACCACACTGACTGCAGACAAATCCTCCAG
L E W I G W I F P G D D T T D Y N E K F R G K T T L T A D K S S S
310 320 330 340 350 360 370 380 390 400
CACAGCCTACATTTTGCTCAGCAGCCTGACCTCTGAGGACTCTGCGATGTATTTCTGTGTAAGGAGTGACGACTTTGACTACTGGGGCCAGGGCACCACT
T A Y I L L S S L T S E D S A M Y F C V R S D D F D Y W G Q G T T
410 420 430 440 450 460 470 480 490 500
CTCACAGTCTCCTCAggtggaggcggttcaggcggaggtggctctggcggtggcggaagcCAAATTGTTCTCACCCAGTCGCCAGCAATCATGTCTGCAT
L T V S S G G G G S G G G G S G G G G S Q I V L T Q S P A I M S A S
510 520 530 540 550 560 570 580 590 600
CTCCAGGGGAGAAGGTCACCATAACCTGCAGTGCCAGCTCAAGTGTAAGTTACATGCACTGGTTCCAGCAGAAGCCAGGCACTTTTCCCAAACTCTGGAT
P G E K V T I T C S A S S S V S Y M H W F Q Q K P G T F P K L W I
610 620 630 640 650 660 670 680 690 700
TTATAGCACATCCAACCTGGCTTCTGGAGTCCCTACTCGCTTCAGTGGCAGTGGATCTGGGACCTCTTACTCTCTCACAATCAGCCGAATGGAGGCTGAA
Y S T S N L A S G V P T R F S G S G S G T S Y S L T I S R M E A E
710 720 730 740 750 760 770 780 790 800
GATGCTGCCACTTATTACTGCCAGCAAAGGACGAGTTATCCACCCACGTTCGGCTCGGGGACAAAGTTGGAGATAAAAggaggtggtggcagtggtggcg
D A A T Y Y C Q Q R T S Y P P T F G S G T K L E I K G G G G S G G G
810 820 830 840 850 860 870 880 890 900
gcggatccggtggcggtggctcaCAGGTCCAGTTGCAGCAGTCTGGACCTGAGCTGGTGAAGCCTGGGGCTTCAGTGAAGATGTCTTGTAAGGCTTCTGG
G S G G G G S Q V Q L Q Q S G P E L V K P G A S V K M S C K A S G
910 920 930 940 950 960 970 980 990 1000
CTACACCTTCACAGACTACTTTATACACTGGGTGAAACAGAGGCCTGGACAGGGACTTGAATGGATTGGATGGATTTTTCCTGGAGATGATACTACTGAT
Y T F T D Y F I H W V K Q R P G Q G L E W I G W I F P G D D T T D
1010 1020 1030 1040 1050 1060 1070 1080 1090 1100
TACAATGAGAAGTTCAGGGGCAAGACCACACTGACTGCAGACAAATCCTCCAGCACAGCCTACATTTTGCTCAGCAGCCTGACCTCTGAGGACTCTGCGA
Y N E K F R G K T T L T A D K S S S T A Y I L L S S L T S E D S A M
1110 1120 1130 1140 1150 1160 1170 1180 1190 1200
TGTATTTCTGTGTAAGGAGTGACGACTTTGACTACTGGGGCCAGGGCACCACTCTCACAGTCTCCTCAggtggaggcggttcaggcggaggtggctctgg
Y F C V R S D D F D Y W G Q G T T L T V S S G G G G S G G G G S G
1210 1220 1230 1240 1250 1260 1270 1280 1290 1300
cggtggcggaagcCAAATTGTTCTCACCCAGTCGCCAGCAATCATGTCTGCATCTCCAGGGGAGAAGGTCACCATAACCTGCAGTGCCAGCTCAAGTGTA
G G G S Q I V L T Q S P A I M S A S P G E K V T I T C S A S S S V
1310 1320 1330 1340 1350 1360 1370 1380 1390 1400
AGTTACATGCACTGGTTCCAGCAGAAGCCAGGCACTTTTCCCAAACTCTGGATTTATAGCACATCCAACCTGGCTTCTGGAGTCCCTACTCGCTTCAGTG
S Y M H W F Q Q K P G T F P K L W I Y S T S N L A S G V P T R F S G
1410 1420 1430 1440 1450 1460 1470 1480 1490 1500
GCAGTGGATCTGGGACCTCTTACTCTCTCACAATCAGCCGAATGGAGGCTGAAGATGCTGCCACTTATTACTGCCAGCAAAGGACGAGTTATCCACCCAC
S G S G T S Y S L T I S R M E A E D A A T Y Y C Q Q R T S Y P P T
1510 1520 1530 1540 1550 1560 1570 1580
GTTCGGCTCGGGGACAAAGTTGGAGATAAAAgactacaaggatgacgacgataagtgataagcggccgcaat
F G S G T K L E I K D Y K D D D D K * *

FIG. 3

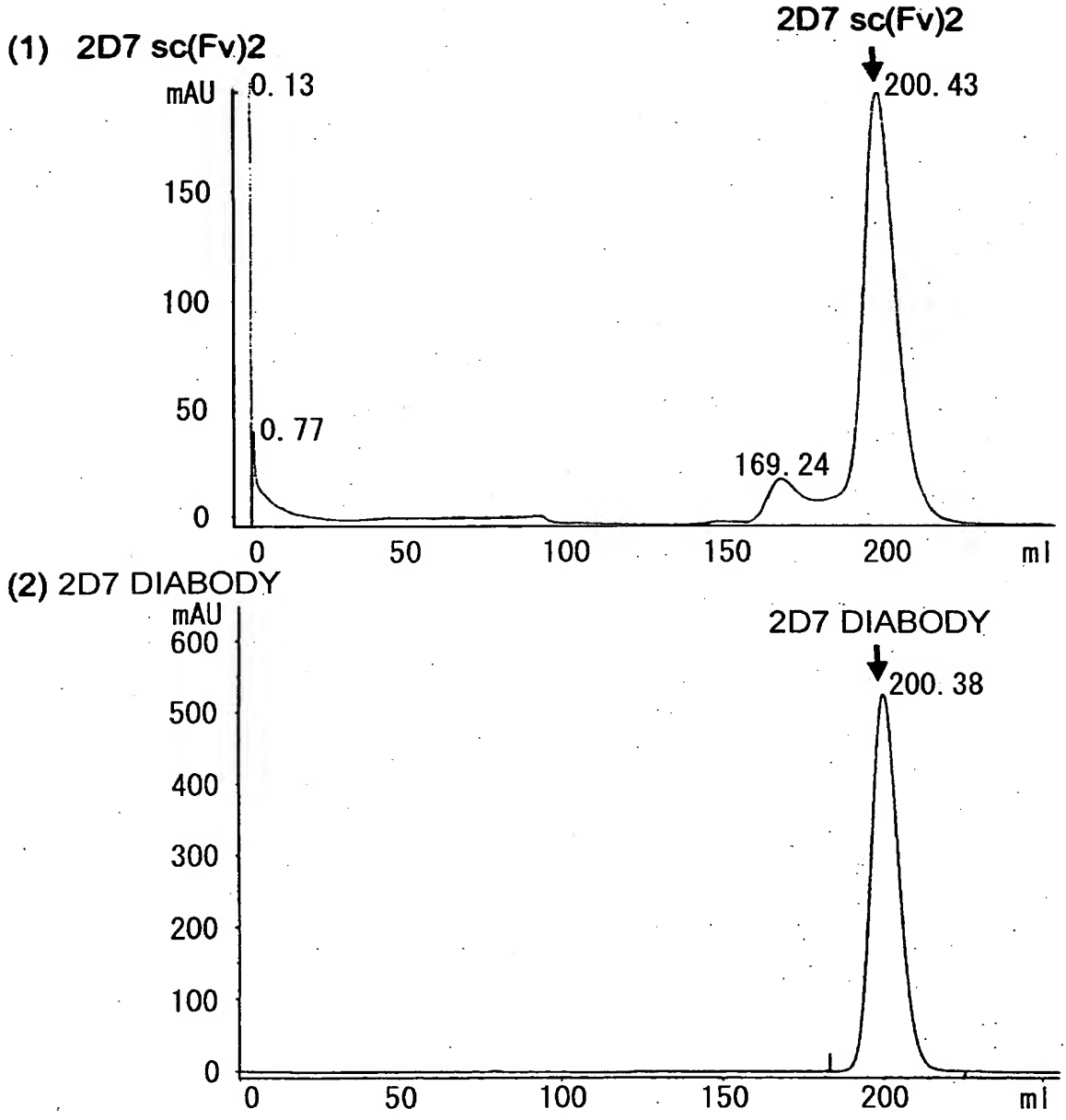

(1) 2D7 sc(Fv)2
2D7 sc(Fv)2
mAU
0. 13
200. 43
150
100
50
0. 77
169. 24
0
0
50
100
150
200
ml
(2) 2D7 DIABODY
mAU
2D7 DIABODY
600
200. 38
500
400
300
200
100
0
0
50
100
150
200
ml

FIG. 4

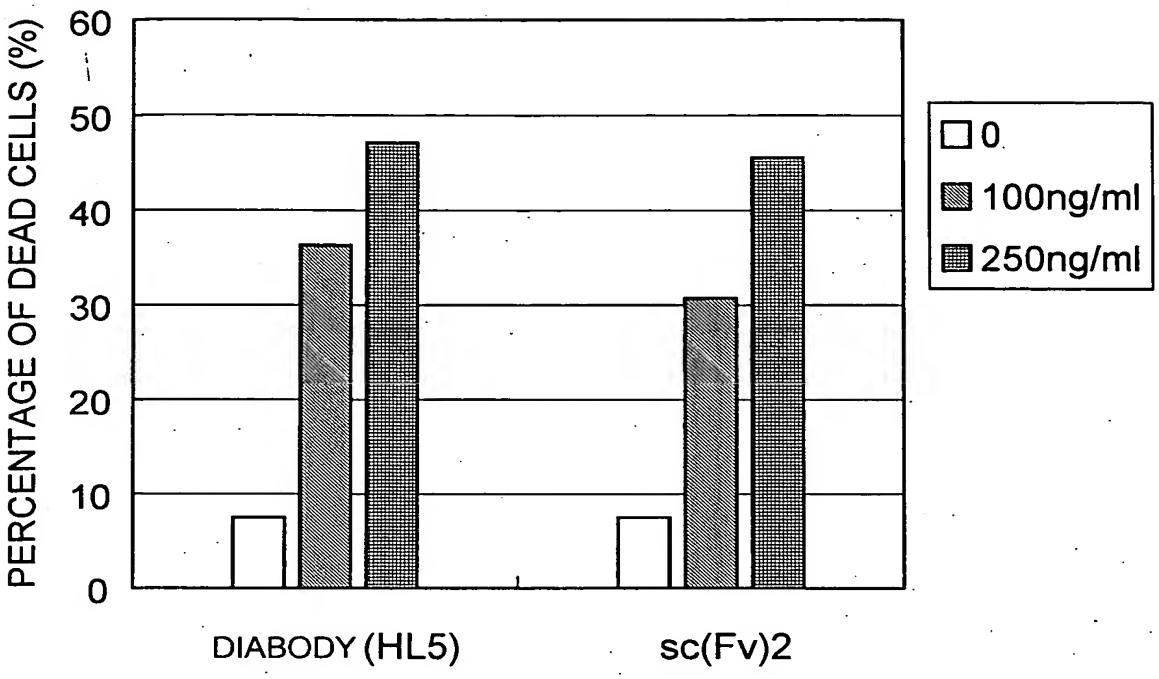

PERCENTAGE OF DEAD CELLS (%)
60
50
40
30
20
10
0
0
100ng/ml
250ng/ml
DIABODY (HL5)
sc(Fv)2

FIG. 5

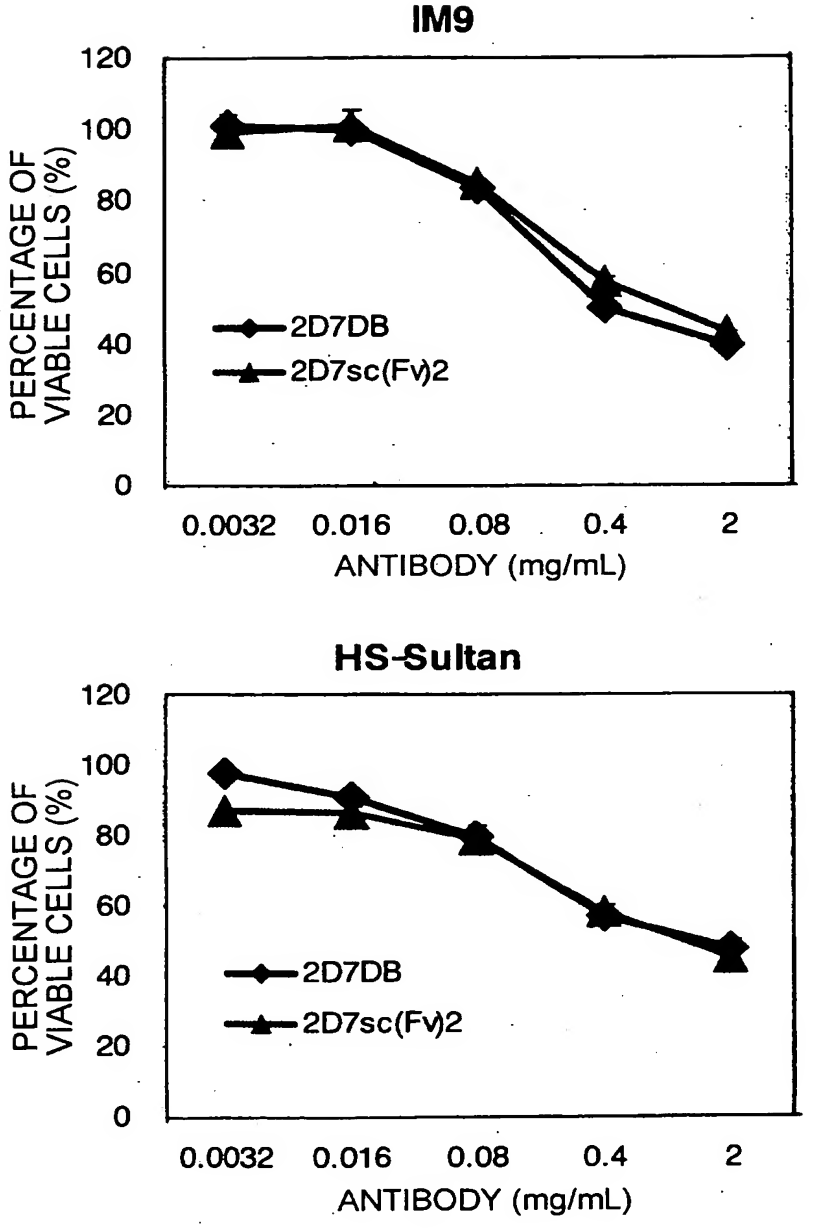
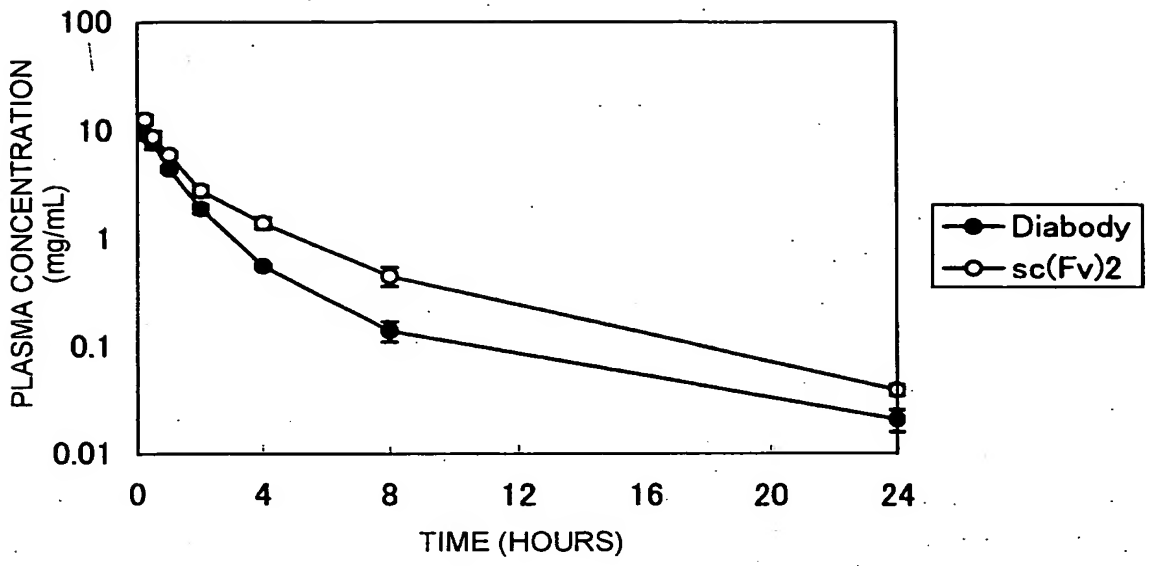

IM9
120
100
80
60
40
20
0
PERCENTAGE OF VIABLE CELLS (%)
2D7DB
2D7sc(Fv)2
0.0032
0.016
0.08
0.4
2
ANTIBODY (mg/mL)
HS-Sultan
120
100
80
60
40
20
0
PERCENTAGE OF VIABLE CELLS (%)
2D7DB
2D7sc(Fv)2
0.0032
0.016
0.08
0.4
2
ANTIBODY (mg/mL)

FIG. 6


100
10
1
0.1
0.01
PLASMA CONCENTRATION (mg/mL)
0
4
8
12
16
20
24
TIME (HOURS)
Diabody
sc(Fv)2